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**PACIFIC TELESIS**
Group-Washington

November 6, 1995



William F. Caton
Acting Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554



Dear Mr. Caton:

Re: *CC Docket No. 95-72, End User Common Line Charges: Comments on Non-Traffic-Sensitive Cost Data Submitted by the Regional Bell Operating Companies*

On behalf of Pacific Bell, please find enclosed an original and six copies of its *"Reply Comments"* in the above proceeding.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,

S. L. Herauf (JAB)

Enclosure

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554



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| In the Matter of<br><br>End User Common Line Charges: Comments on Non-Traffic-Sensitive Cost Data Submitted by the Regional Bell Operating Companies | CC Docket No. 95-72<br><br>DOCKET FILE COPY ORIGINAL |

# REPLY COMMENTS OF PACIFIC BELL

## INTRODUCTION

Pacific Bell hereby submits its reply comments with regard to the Non-Traffic-Sensitive ("NTS") cost data it and other RBOCs submitted in response to the Commission's September 29, 1995 data request.[1] We believe those data only reinforce the conclusion that the Commission should adopt a one-EUCL[2]-per-facility rule for ISDN lines. This conclusion is in keeping with the Commission's desire to "avoid erecting regulatory barriers to the development of beneficial new technologies . . . particularly . . . when these services and technologies can

[1] The Commission invited such comments in its Public Notice released October 11, 1995. In the Matter of End User Common Line Charges, CC Docket No. 95-72, Public Notice, "Pleading Cycle Amended for Comments on Non-Traffic-Sensitive Cost Data Submitted by the BOCs," DA 95-2148 (rel. Oct. 11, 1995).

[2] End User Common Line charge, also known as a Subscriber Line Charge.

facilitate access to the benefits of the National Information Infrastructure."[3] In addition, it is a result supported by the NTS cost data the RBOCs provided the Commission.

### A. A One EUCL Per Facility Rule Furthers the Commission's Policy of Fostering New Technology

The importance of ISDN to the National Information Infrastructure ("NII") must be viewed in the context of other services ISDN benefits. Access to the Internet and telecommuting are but two of the exploding on-line activities ISDN makes faster and easier. Viewed in this context, ISDN is vital to the development of the NII in areas very popular with large numbers of consumers. If the FCC does not adopt a one-EUCL-per-facility rule, this growth likely will stall and the millions of Internet users and telecommuters, as well as ISDN providers, will lose out.

The nexus between ISDN, the Internet and telecommuting, and the growth of all three industries, is well documented. Recently, several large industry analysts projected Internet revenues at $15 billion annually by 1998, and between $45.8 billion and $73 billion annually by the year 2000.[4] ISDN is catching on among "Web surfers" -- users of the World Wide Web on the Intzernet -- because it offers speed and extra lines.[5] "Dataquest says the number of ISDN lines in the United States is expected rise [sic] to 2.2 million by the end of the

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[3] In the Matter of End User Common Line Charges, CC Docket No. 95-72, Notice of Proposed Rulemaking (rel. May 30, 1995), FCC 95-212 ("EUCL NPRM"), ¶ 17.

[4] Reports of Hambrecht & Quist, Alex, Brown & Sons and Forrester Research, Inc., respectively, as summarized in "The Internet Economy: How Big," Interactive Week, Vol. 2, No. 20 (Oct. 23, 1995), at 65 (copy attached hereto as Exhibit A).

[5] "ISDN -- Short for Speed: Phone Line Catches On Among Web Surfers," San Francisco Chronicle (October 31, 1995), at C6 (copy attached hereto as Exhibit B).

decade, up from just under half a million this year."[6] Finally, more than 8 million people nationwide telecommute -- work from home with the aid of home computer modems, fax lines and telephones -- and ISDN offers telecommuters additional lines and faster transmission speeds.[7]

If the Commission wishes to make the NII accessible to consumers and the residential market, it should adopt policies that make ISDN accessible to these markets. A one-EUCL-per-facility approach is the only one that makes sense if this is truly the Commission's goal.

### B. The Ratio of the Average LEC Cost of Providing a Derived Channel Service to the Average Cost of Providing An Ordinary Local Loop Supports a One-EUCL Per-Facility Rule

In it comments, GTE compared the cost data the RBOCs submitted for Basic Rate Interface ("BRI") ISDN -- the product most appealing to residential customers -- to the average cost of providing an ordinary local loop. The Commission suggested this comparison would be useful in determining the appropriate number of EUCLs to charge for ISDN.[8] GTE found the ratio to be very close to <u>one</u> if NTS costs other than loop costs were excluded.[9] Thus, with regard to the service most accessible to the residential market, the numbers justify a one-EUCL-per-facility rule.

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[6] <u>Id</u>.

[7] "Telecommuting by Wire," <u>San Francisco Examiner</u> (October 31, 1995), at B1 (copy attached hereto as Exhibit C).

[8] EUCL NPRM, ¶ 27.

[9] Comments of GTE, filed October 30, 1995, at 8-10 (calculating Bell Atlantic's ratio at 1.0, Pacific Bell's at 1.03, NYNEX's at 1.0 and Ameritech's at 1.07).

While the ratios are higher with regard to Primary Rate Interface ("PRI") service -- a service with far less demand than BRI service -- we agree with GTE that the revenues generated from imposing several EUCLs on PRI service will be minimal given the low penetration of the service.[10] Thus, there will be little recovery of NTS costs caused by charging several EUCLs for PRI service. Likewise, the downward impact on CCL rates of charging additional EUCLs -- another goal of the Commission[11] -- will be *de minimis*.

We note that MCI, the only other party filing comments with regard to the NTS cost data the RBOCs submitted, also concluded that "the difference between the NTS costs of ISDN loops and standard loops is nominal."[12] MCI concluded that one EUCL charge should be applied per facility for both BRI and PRI ISDN service.[13]

Thus, both commenters who saw the NTS data interpreted them to support the consensus opinion in favor of a one-EUCL-per-facility rule. We urge the Commission to do the same.

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[10] Id. at 9-10 (calculating Bell Atlantic's PRI cost to local loop ratio at 3.37, Pacific Bell's at 4.67, NYNEX's at 12.9 and Ameritech's at 5.68).

[11] EUCL NPRM, ¶ 18.

[12] Comments of MCI Telecommunications Corporation, filed October 30, 1995, at 1-2.

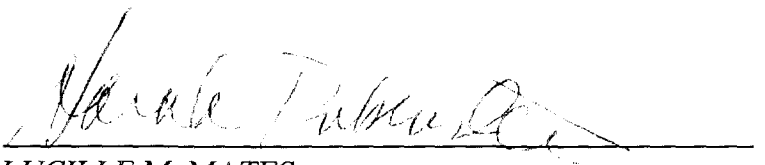
[13] Id. at 2.

## CONCLUSION

The Commission has the opportunity to aid in the development of popular technology that is available today to large numbers of consumers. We urge the Commission to take up this challenge and foster rather than hinder growth in promising new markets of great importance to the National Information Infrastructure.

Respectfully submitted,

PACIFIC BELL



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Date: November 6, 1995

# INTER@CTIVE WEEK

THE SINGLE SOURCE


## @Net Index

The Net is hot. And so is the @Net. The American Stock Exchange began trading options on *Inter@ctive Week*'s new Internet Index.

Check out the latest @Net index (page 62) and visit our Web site (**www.interactive-week.com/~intweek**) for constant updates.



# Net Travel Means Business

KATHY DEETER

**By Steven Vonder Haar**

The travel business is coming to the Net.

Internet surfers, starting in March, will be able to make travel reservations and buy airline tickets on a major new World Wide Web site being developed by American Airlines' SABRE reservation system and Worldview Systems Corp.

The partners expect the new service, dubbed Travelocity, will join the elite group of World Wide Web pages that attract millions of hits daily. "We're creating a category-killer product for handling travel transactions," said Worldview President Neal Cheekoway.

In so doing, the partnership could wind up developing a site that handles a higher volume of commercial transactions than any other Web site currently in operation.

American Airlines is embracing the Internet in a way few other major corporations have.

SABRE officials have always been sticklers for security, with the service's sole data center in Tulsa, Okla., buried under six feet of concrete for protection. They said the same type of attention will be paid to securing online transactions.

"We're confident that the security issue will be solved by the time we roll this out," according to SABRE Interactive President Terrell Jones.

# Cyberspace: Realm Of The Coin?

The chief value of money lies in the fact that one lives in a world in which it is overestimated, H.L. Mencken said.

But that hasn't kept research firms and Wall Street analysts from trying to figure out just how much business the Internet will spawn. A pair of new estimates top $[illegible] billion a year by the turn of the century.

Meanwhile, U.S. online compa[illegible] trying to girdle the globe.



# Internet Society Shuffle

**By Tim Clark**

The Internet may be going commercial as a result of the disappearance of government funds for what started out as a computer network for researchers.

But that doesn't mean the Internet Society has to follow suit.

In fact, the executive director of the society has decided to leave the post before his contract expires, because of an inability to persuade the group's board that companies trying to build up the Internet ought to have more say in the organiza[illegible]

consin computer scientist who is president of I-Soc's board. "We are basically continuing doing what we're doing."

The rift between the board and Rutkowski is a microcosm of the debate over how the Internet will be governed as usage booms worldwide and companies try to capitalize on the suddenly popular network of networks.



EXHIBIT A

# The Internet Economy: How Big?

By Tim Clark

The Internet has fascinated Wall Street and corporate America for all of 1995, so it's no great surprise that brokerage houses and industry analysts are grinding out reports on the billion-dollar issue.

Just how big is the Internet economy exactly?

In the past month, two big brokerages, Hambrecht & Quist and Alex. Brown & Sons, and a respected consulting firm, Forrester Research Inc., have churned out reports projecting Internet-related revenues from infrastructure investment, access services, content and transactions. Alex. Brown predicts a $15 billion Internet industry by 1998. Forrester projects $45.8 billion annually by the year 2000. H&Q says $73 billion at the turn of the century.

The range of figures suggests the obvious: Nobody really knows what the overall worth of the Net will be in business terms. But disparate numbers mask agreement on some points:

▶ The earliest billions in Internet revenues will come from expanding the capacity and capabilities of the worldwide network of computer networks. Forrester sees $14.2 billion of such infrastructure investment in 2000, while Hambrecht & Quist projects $13 billion for the same year. Alex. Brown expects $6 billion by 1998. In general, these analysts count as infrastructure the computers, wires, software and services that make the Internet hum.

▶ Count on revenue from the stuff that makes the Net an information highway picking up a bit more slowly. H&Q and Forrester project $10 billion in revenue in 2000 from the supply of content. Alex. Brown counts a far lower $3 billion in 1997 — for both content and transactions. But after that, the firm says content revenue will boom.

▶ Transactions on the Net could be huge, but how huge is pure guesswork. Forrester expects $21.9 billion in Net transactions by 2000, while H&Q throws out a $50 billion figure.

Indeed, projections are only projections, and not any guarantee that commerce between computers will be a big business, for consumers or corporations.

**New projections of Net business dwarf earlier ones. But they're no guarantee that reality will follow suit**

"The adoption rate will be slower than people expect," says Giles McNamee, senior vice president at First Albany Corp., a Boston investment firm.

"[The Internet] is a great vehicle for publishing, but not yet a good venue for doing business," he adds.

Karen Burka, an analyst at Simba Information Inc., says Internet transactions will grow much more slowly than these reports indicate. She expects $54.3 million in Internet sales this year, growing to just under $1 billion in the year 2000. But Simba has focused on hard merchandise, not digital products, such as software, which can be shipped easily over the Net itself.

This latest round of Internet economic projections dwarfs earlier forecasts, growing just as public attention to the Net has mushroomed. In October 1994, Goldman, Sachs & Co. analyst Michael Parekh predicted the Net's economy would hit $4.3 billion in 1997. In April 1995, San Francisco-based Volpe, Welty & Co. predicted the Internet economy would reach $5.8 million in 2000.

The recent analyses expand the potential size of the Internet economy tenfold, identifying some drivers of the growth and potential obstacles:

▶ Security issues must be resolved to hit these numbers, but the analysts say they think that will happen soon.

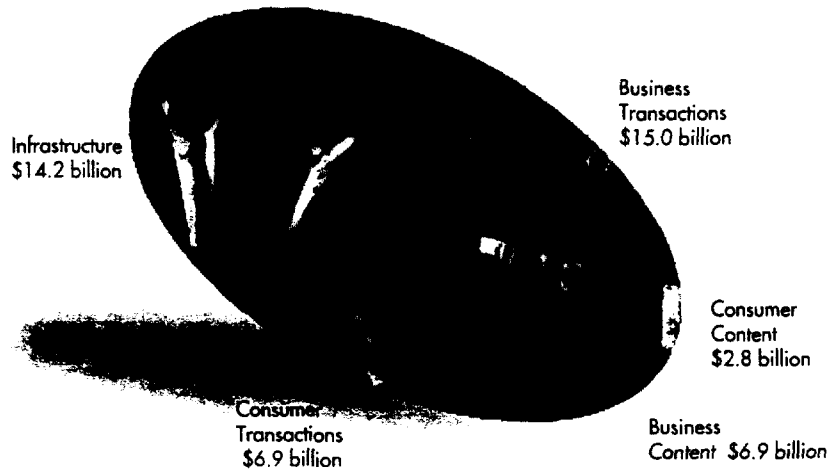
▶ Business spending, not consumers, will be the grease of Internet commerce at first.

"In the business-to-business world, commerce is driven by needs," says Dave Mulwaney of Industry.Net Inc., a Web mall for smokestack industries. "The need has arisen."

▶ The number of households with personal computers will continue to climb, and so will consumers connecting to the Internet.

▶ Bandwidth, which determines how long Net surfers must wait for graphics, video or sound files to ▶

## Internet Economy In the Year 2000




Source: Forrester Research

Total: $45.8 billion

▼appear on their screens, will increase. Prices will decline.

▶ These projected revenues underrate the Internet's impact on businesses. The Internet will cut costs and change how companies conduct business. (See related story on this page.)

Here are highlights from the three latest reports:

**Forrester Research**

http://www.forrester.com

Forrester estimates today's Internet economy at $2 billion, with commercial online services accounting for $1.5 billion.

Business content — credit reports, market data, investment information — will reach $6.9 billion in 2000, compared to just $2.8 billion in consumer content — mostly advertising with some subscriptions.

In 2000, consumers will manage $29.9 billion in mutual funds and $16.3 billion in deposits via the Net.

"Some [economic] sectors, including computers, communications, publishing, retail, information, entertainment and financial services, will be critically affected by the Internet," Forrester's Mary Modahl writes.

The Net economy will produce new products and services, unexpected competition, tougher customer service requirements and distribution conflicts. Technology know-how will be the key differentiator.

**Hambrecht & Quist**

http://www.hamquist.com

H&Q breaks down its projected $73 billion Internet economy into three components: Infrastructure, $13 billion; content, $10 billion; and transactions, $50 billion. Its analysis is based on somewhat sunny assumptions.

Analyst J. Neil Weintraut predicts the Net will move from novelty to "mainstream uptake" in mid-1996 with the emergence of secure electronic payments and new, useful services. That will stimulate international markets, which run a year or two behind the U.S. He also predicts encryption issues with the government will be resolved.

"The World Wide Web harnesses, leverages and improves existing information technology resources and infrastructure," H&Q writes. Other technological advances usually require new systems and thus are adopted more slowly.

**Alex. Brown & Co.**

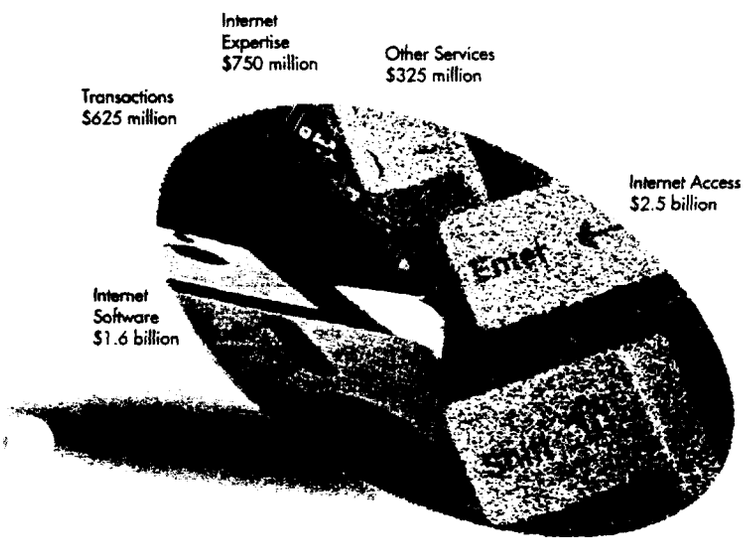
The Baltimore-based brokerage projects a 1998 Internet economy of $13.5 billion to $16 billion, with these components: Infrastructure, $6 billion; access and services, $5 billion to $7 billion; content and commerce, $2.5 billion to $3 billion.

"We believe the real opportunity for content and commerce is a five- to 10-year opportunity," according to Shaun Andrikopoulos, an equity analyst. "Content and commerce are likely to eclipse the other categories of Internet revenues in that time frame."

For three to five years, Andrikopoulos expects commercial online services and Internet access providers to grow rapidly but fears declining prices may hurt their profits.

He expects Internet access companies to ally with content companies to boost their appeal. ▲

## Internet Economy In Year 2000




Source: Volpe, Welty & Co. (April 1995)

Total $5.8 billion

SIMPLY STATED

## Net Savings

Anita Schiller, director of electronic marketing at Silicon Graphics Inc., figures SGI's Web site (**http://www.sgi.com**) saved her the better part of $1 million in promoting seminars about the company's software tools.

That's what she would have spent on designing, printing and mailing a direct-mail piece to hawk the seminar series to developers. Instead, she posted information and registration on Silicon Surf, SGI's Web site, for the cost of some design and software engineering.

**'You don't have to do transactions to make the Net be very, very important to your business'**

This example illustrates what may emerge as the Web's most profound effect on American business: saving money, not generating it. The Net gives corporations cheaper ways to move data, market themselves and their products to customers, offer technical support, collect information and deliver software.

"From my perspective, you don't have to do transactions to make [the Net] be very, very important to your business," says Cathy Medich, executive director of CommerceNet, a consortium of 130 companies experimenting with electronic commerce. "You can establish tighter relations with customers and get faster feedback on new product ideas."

Mary Modahl, analyst at Forrester Research, concurs: "This trend will fundamentally alter the way companies create and disseminate information."

Part of the reason is technical. If corporate computers use the Net's TCP/IP communications protocol, which describes how computers talk to each other, incompatible computer systems can communicate.

— *Tim Clark*

# Getting The Voice Right

**By Tim Clark**

"We want to build a marketing system, not a Web site," says Thad Peterson, president/CEO of Denver's Customer Communications Group.

In simple terms, that means building "deep" sites.

"Have more content than the user needs or wants," Peterson advises. "We think it's real dangerous not to build a richness of content."

The 20-year-old firm has branched out from newsletters to the World Wide Web and begins its cyberwork by pulling together the client's image, design, marketing and collateral material, spreading it out in a conference room and diving in for a couple days. The goal: To get not just the look of the company, but the voice.


"We reduce everything to a core concept or core feeling or core impression that we want to create," says Tim Roessler, who heads CCG's Internet team. "That core idea is related to specific marketing goals. Then we try to build out in an intuitive way."

The client collaborates in identifying the core concept. "A lot of the information comes right out of the client's mouth," Peterson notes.

CCG's latest site is a women's clothier called Express (http://express.style.com).

"At the heart of Express brand is this French theme and whimsy," says Roessler. Translating those into a Web site meant using French phrases, a French glossary, French imagery (photos and graphics), updating an invented-in-France typeface called Sabon and the latest on Paris fashions.

Specializing in the latest Paris designs for budget buyers. Express' feel and content are designed to make Express' 25- to 35-year-old target market feel au courant.

KN Energy, a power utility company got a different, more industrial look (http://www.kne.com).

"You try to choose imagery that's appropriate to the client," says Roessler. "You can't take a power company and drench it in perfume."

The marketing aspects of the site are more apparent than its imagery, he says. "The imagery is something not given enough attention on the Web so far." ▲

ONIC FUTURE

# ISDN — Short for Speed

## Phone line catches on among Web surfers

*By David Einstein*
*Chronicle Staff Writer*

Having a hard time coming up with a holiday present for that Internet-freak spouse of yours? Here's just the thing: an ISDN phone line.

It's not cheap. The equipment alone will set you back at least $250. And in California the service will run $24.50 a month, plus 3¢ for the first minute of each call and a penny for each additional minute during peak hours, on top of any other toll or long-distance charges. There's also a $159.75 installation charge, although $125 of that is waived if you keep the line for two years.

*'The Internet is really driving it, because ISDN makes it so much easier to surf the Net*

— MARY HANCOCK, spokeswoman for Pac Bell

What do you get for that kind of investment? Speed, which is like gold to professional Web surfers. An ISDN line designed for home use transmits data at 64 kbs (thousands of bits) per second. That's more than twice as fast as the fastest standard modems, which run at 28.8 kbs.

Integrated Services Digital Network — ISDN for short — allows the same twisted-pair copper telephone line that traditionally could carry one voice, data or fax message to carry as many as three separate "conversations."

ISDN has been around for years, but it didn't garner much attention until corporate data networks began to demand more communications punch than regular phone lines could provide. Today, ISDN is widely used by businesses to transmit information, and it promises to boost other budding technologies such as desktop video conferencing.

In addition, the high-speed lines now are finding favor with telecommuters, who have to stay in touch with their company computers, and people who want the fastest possible access to the graphics, animation, sound and video of the Internet.

"The jokes are over for ISDN," said ComputerLetter in a recent editorial. "After two decades of being mocked as 'innovation subscribers don't need' and 'it still does nothing,' the Integrated Services Digital Network is finally catching on."

Indeed. Dataquest says the number of ISDN lines in the United States is expected rise to 2.2 million by the end of the decade, up from just under half a million this year.

Availability of ISDN depends on where you live. In mid-Atlantic states serviced by Bell Atlantic, anyone can get a line. But if you live in Oklahoma or Alaska, you're out of luck.

Pacific Bell, which services California, says it will offer ISDN to 90 percent of its customers by year-end. Currently Pac Bell has some 46,500 ISDN lines in operation.

Only a small number of those go into homes. But Pac Bell says that consumers are now the fastest-growing part of the ISDN business. The company said ISDN installations shot up 125 percent in the most recent quarter.

"The Internet is really driving it, because ISDN makes it so much easier to surf the Net," says Mary Hancock, a spokeswoman for Pac Bell.

Beware, however, because not all Internet providers allow access through ISDN lines. Some big names, including PSI and UUNet, are ISDN compatible. But Netcom, one of the largest Internet providers, is not.

Likewise, the major online services have been slow to embrace ISDN — in fact, they are still busy upgrading to 28.8 kbs. CompuServe plans to announce this week the first 10 cities where its members can log on via ISDN. Prodigy is conducting trials with three regional Bells, including Pac Bell (however, you need a special IBM adapter to connect to Prodigy). And America Online is waiting until there is more market demand for ISDN.

On the other hand, Pac Bell itself intends to offer Internet services by the end of the year, thus assuring access to anyone with a Pac Bell account — regular or ISDN.

A line also can be ordered by calling Pac Bell's ISDN Service Center at 1-800-472-4736. Once you place the order, it takes the phone company five to 12 days to complete the installation.

In order to hook up a PC to a Pac Bell ISDN line, you need a terminal adapter (also known as an ISDN modem) and a power supply. Fortunately, both functions come bundled in devices made by several companies. Motorola has a model available in some places for $249 that can handle 64 kbs, and another version for $399 that allows two of the three data lines to be bonded, yielding a speed of 128 kbs. 3Com offers a similar 128 kbs device for around $449.

ISDN equipment is available at some software and electronics stores, including Fry's and Egghead. At Fry's stores, consumers also can sign up to get a Pac Bell ISDN line.

An ISDN line can replace a regular phone line, but Pac Bell officials discourage that. One reason is that because of its independent power supply, an ISDN line won't work during a power outage. Another reason is that the phone company makes more money on two lines than on one.

SAN FRANCISCO EXAMINER B1 10/31/95

San Francisco Examiner

# Telecom

# COMMUTING BY WIRE

**More than 8 million people nationwide telecommute — including 300,000 in the Bay Area — sending information to supervisors and co-workers via home-computer modem, fax and telephone**


PowerPC Mac. If you're m

# Commuting by wire

By Wendy Tanaka
OF THE EXAMINER STAFF

Pat O'Donnell does it practically every day. Lorene Hall does it two or three days a week. And Arnaud Mauvais only does it about once every two weeks.

But these workers all agree it's the best way to relieve stress.

They're talking about telecommuting, which is becoming more popular thanks to increasingly smaller, faster and smarter electronic equipment that allows employees to work from home.

Although some Bay Area executives have been telecommuting for 20 years, it is only recently that companies — inspired by savings in real estate costs and increased worker productivity — have created formal programs.

Managers' unwillingness to relinquish control over their workers' time was one reason for the delay, industry experts say. Another was the difficulty in developing workable guidelines for at-home assignments.

"If you look at telecommuting as a perk or entitlement, that's an obstacle," said Gil Gordon, president of Gil Gordon Associates, a research consulting firm based in Monmouth Junction, N.J., that's hosting Telecommute '95 in Santa Clara Nov. 7-10.

Those fortunate enough to telecommute boast of a healthier balance between the demands of home life and work.

"It's given me a lot of flexibility," said O'Donnell, an IBM salesman based in San Francisco who used to clock in every day at one of the company's Bay Area offices but who now works almost exclusively from home or at customers' offices in The City and San Mateo.

"I'll wake up at 5:30 to take a conference call from the East Coast in my bathrobe," he said. "After that, I'll go out for a run and then come back and fix lunch for my 6-year-old daughter."

According to industry statistics, 8.1 million

[See *TELECOMMUTE, B-4*]

people nationwide work up to three days a week away from the office, usually at home, sending information back and forth to supervisors and co-workers via home-computer modem, fax and telephone.

Market research firms expect the number of telecommuters to double by the turn of the century as more than half the jobs nationwide lend themselves to telecommuting. These jobs, industry observers say, generally involve manipulating data and information. Business executives, lawyers, accountants, engineers, word processors and scientists are among those who are doing it.

Mauvais, a network services manager at Autodesk Inc., said he needs to telecommute from his Nob Hill apartment — where his home-office looks out on the Golden Gate Bridge — to the company's San Rafael office one day every other week to work on reports and budgets.

"It's very important to keep in touch with the people you manage," he said. "If it's the day-to-day stuff, I come to work."

## Made for the Bay

Some workplace experts consider the Bay Area, with its 300,000 telecommuters, 4.5 percent of the region's workforce, a hotbed for the trend.

Telecommuting is "high-performance work, and that fits the Bay Area to a T," said Tom Miller, a vice president at New York-based market researcher FindSVP Inc. "(The Bay Area's) high-tech workforce is way above average. If you understand that your corporate wealth is dependent on human resources, you want to reduce the stress of your workers and find ways to get peak performance."

Natalie Fay, manager of telecommuting programs for the Association of Bay Area Governments, had this observation:

"In general, information-based companies have the most telecommuters," she said. "But it's the management structure, too. Silicon Valley is young and has a corporate culture that lends itself to telecom-

muting."

Others say the Bay Area lifestyle is conducive to telecommuting.

"People who work this way are motivated by quality of life issues more than salary," said Charles Grantham, president of the Institute for the Study of Distributed Work in Oakland. In that respect, "the Bay Area is ahead of other metropolitan areas."

As it did for IBM's O'Donnell, telecommuting has helped Lorene Hall juggle work and personal needs. Hall, manager of HP Laboratories' Internet web site in Palo Alto, said she and her retired husband would not have been able to move into their new Santa Cruz home if she couldn't telecommute.

"I wasn't willing to make the move until I had some certainty I could telecommute," said Hall, who noted that before moving she lived within walking distance from HP Labs, the research and development arm of Hewlett-Packard Co.

So the former librarian mocked up a few summaries on the benefits of telecommuting and sent them to H-P executives.

But the computer firm already had been experimenting with telecommuting for several years although it didn't launch a formal telecommuting program until February 1994. Hall began telecommuting from Santa Cruz at the end of that year, after the company installed an ISDN line and set up a UNIX workstation and personal computer in her new home.

Now she telecommutes two to three days a week, saving at least two hours of travel time a day. And although she works the same number of hours, Hall said she has more flexibility in scheduling her time.

A typical day working at home might begin at 8 a.m., with a break to exercise later in the day, and back to work in the evening for another hour or so.

"Working at home I feel so much more in control of my life," she said. "If something (personal) needs to be done, I go do it. I don't have to take half a day off, and I'm right next to the kitchen."

Even workers who have short commutes love telecommuting.

"I can get at least two to three times as much work done" at home, said Diamond Heights residents Joe Castrovinci, who works at Pac Bell's downtown San Francisco headquarters, writing for the company's magazine and newspaper.

**Real estate savings**

Today, as many as 800 of H-P's 16,000 employees in the Bay Area telecommute. Pacific Bell says 25 percent of its workforce does it and BankAmerica Corp. said about 6 percent of its employees telecommute at least once a week.

Many employers sing the praises of telecommuting as loud as their workers. Managers — who were once afraid their workers would slack off at home, watching hours of TV or playing with their children — are finding that telecommuting can dramatically boost workers' morale, which often leads to higher quality of work.

Tom Tortora, a Pac Bell product manager who helps large corporations develop telecommuting programs, says Bay Area companies are finding that the benefits of such plans make them worth the risks:

▶ Telecommuting helps companies reduce the amount they spend buying or renting office space.

Companies, Tortora said, can save between 25 and 90 percent on real estate costs a year, which often translates to millions of dollars in savings.

According to FindSVP's Miller, companies can shell out up to $5,500 on home-office start-up costs for each of their workers. The cost, he said, to equip, train and furnish an employee in the traditional workplace can run between $12,000 and $15,000.

▶ Studies show that telecommuting increases worker productivity 15 to 25 percent, due to enhanced job satisfaction, said Pac Bell's Tortora. Most of the gains, he noted, are accounted for in reduced employee travel time.

▶ Telecommuting has also proved effective in retaining employees and attracting prospective workers.

"There are jobs people wouldn't take if they couldn't telecommute," Fay said.

McGraw-Hill School Systems was having trouble attracting

## Commuting by wire

South Bay programmers to work at its Monterey offices. So, the division of New York-based publishing giant McGraw-Hill Cos. launched a pilot telecommuting program in the hopes of luring educational software programmers who live in Silicon Valley.

"If we're looking at 200 candidates but only two to three are willing to move, it limits our choices," he said. "With the use of telecommuting, workers only have to come to Monterey two to three days a week," said Steve Benson, McGraw-Hill's telecommunications manager.

▶ Technology — which used to be prohibitively large, and expensive for an office away from the office — is no longer such an obstacle.

Telecommuting has become feasible thanks to affordable, powerful and portable computers, modems, facsimiles and copy machines.

"I usually tote my IBM ThinkPad laptop computer, a cell phone and a beeper, so I'm well wired," said IBM's O'Donnell.

▶ E-mail also has diminished the isolation that used to afflict some telecommuters. According to FindSVP's Miller, 1.6 million households use e-mail — twice as many as those last year.

Some companies have gone beyond traditional work-at-home telecommuting, opening satellite offices located closer to their employees.

In July, United Airlines opened a reservations center in Suisun City, near Fairfield, because its San Francisco International Airport terminal office kept turning over up to half of its telephone and com-

puter workers. According to the airline, some of these workers were commuting three hours a day to a job that paid only $6.65 an hour.

The suburban satellite office now is much closer to home for many reservationists. As a result, the employee attrition rate there has been only about 10 percent, said Leigh Walters, United's Suisun City manager.

State and federal government offices are jumping on the telecommuting bandwagon. In 1993, the feds rolled out a plan to have 3 percent of its workforce — 60,000 employees telecommute by late 1997 for a real estate savings of $150 million a year.

Alameda County's pilot project allows about 200 employees to telecommute who can "work at their desks at home or anyplace else," said Rory Darrah, Alameda County's telecommunications coordinator.

"They all use their own equipment," she said. "The exchange (for working at home) is that they buy the computers. We pay for telephone and modem costs."

EXAMINER/MARK COSTANTINI

**Telecommuter Joe Castrovinci:** *"I can get at least two to three times as much work done" at home.*

PTG employee

### Telecommuting isn't perfect

Rosy as it sounds, however, workers should also be aware of the downside of telecommuting. Many telecommuters say they have more stress in their lives now because they have trouble separating their work and home lives, and don't know when to stop working.

Jim Heid, a writer who lives near Mendocino, believes the telecommuter's freedom is only theoretical.

"One major problem with having your office at home is that, well, your office is at home," he said. "There's no leaving it at the end of the day. It's always there, and there's always a project nagging at you."

At the other end of the spectrum, some telecommuters say the home environment is too distracting or unstructured for them to be productive.

"Personally, sometimes I can work at home, sometimes I can't," said BankAmerica corp. spokesman Bill Wynne.

HP Labs' Hall said she, too, experienced difficulty disciplining herself.

"The first two months were so wonderful to work without interruptions, but then the pull of being at home found me lacking the discipline to do work," she said. "It took several months to make my peace with that."

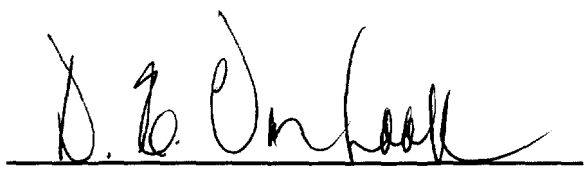
Some industry observers also note that telecommuting cuts down on socializing, which is big part of doing business.

"People like going to work to be around other people," said Peter Schwartz, president of Global Business Network, a strategic planning consortium in Emeryville. "Things happen because of conversations in the hall. This doesn't happen as easily on-line."

Consultant Gordon put it this way: "I don't see a revolution in the offing," with everyone telecommuting. "That's as bad a pendulum swing as saying people have to report to work everyday. The truth is something in the middle."

## Certificate of Service

I, D. E. Van Laak, certify that copies of the foregoing Reply Comments of Pacific Bell for CC Docket 95-72, were sent via first class mail, postage paid, to the following on this 6th day of November 1995.



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